

## Accepted Manuscript

Expression, purification and characterization of an active C491G variant of ferredoxin sulfite reductase from *Synechococcus elongatus* PCC 7942

Karim A. Walters, John H. Golbeck



PII: S0005-2728(18)30174-9  
DOI: doi:[10.1016/j.bbabbio.2018.06.014](https://doi.org/10.1016/j.bbabbio.2018.06.014)  
Reference: BBABIO 47946  
To appear in: *BBA - Bioenergetics*  
Received date: 18 January 2018  
Revised date: 22 June 2018  
Accepted date: 26 June 2018

Please cite this article as: Karim A. Walters, John H. Golbeck , Expression, purification and characterization of an active C491G variant of ferredoxin sulfite reductase from *Synechococcus elongatus* PCC 7942. Bbabio (2018), doi:[10.1016/j.bbabbio.2018.06.014](https://doi.org/10.1016/j.bbabbio.2018.06.014)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Expression, purification and characterization of an active C491G variant of ferredoxin sulfite reductase from *Synechococcus elongatus* PCC 7942

Karim A. Walters<sup>a</sup> and John H. Golbeck<sup>a,b,\*</sup>

<sup>a</sup>*Department of Biochemistry and Molecular Biology, The Pennsylvania State University, University Park, Pennsylvania, 16802, United States*

<sup>b</sup>*Department of Chemistry, The Pennsylvania State University, University Park, Pennsylvania, 16802, United States*

\* **Correspondence:** Dr. John H. Golbeck. Phone (814) 865-1163; Fax: (814) 863-7024; Email: jhg5@psu.edu

**Running Title:** Characterization of a C491G variant of ferredoxin sulfite reductase

**Keywords:** Sulfite reductase, *Synechococcus elongatus* PCC 7942, siroheme, iron sulfur clusters, redox potential.

## Highlights

- Native and C<sub>491</sub>G variant of ferredoxin sulfite reductase both contains a high spin  $S = 5/2$  siroheme  $\text{Fe}^{3+}$  and a low spin  $S = 1/2$   $[\text{4Fe-4S}]^{2+/1+}$  cluster.
- The redox potential of the  $[\text{4Fe-4S}]^{2+/1+}$  cluster in the C<sub>491</sub>G variant ferredoxin sulfite reductase is 58 mV more positive than in the native enzyme.
- The C<sub>491</sub>G variant ferredoxin sulfite reductase shows methyl viologen and ferredoxin 1 activity, albeit at a lower rate than the native enzyme.

Download English Version:

<https://daneshyari.com/en/article/8949247>

Download Persian Version:

<https://daneshyari.com/article/8949247>

[Daneshyari.com](https://daneshyari.com)